

CHAPTER 9.5 (USAREUR)

MAINTENANCE OF HERCULES USAREUR LAUNCHING SECTION MODIFICATION KIT

Section. I. GENERAL

194.104. Scope

This chapter contains DS and GS maintenance information covering the HERCULES USAREUR launching section modification kit. The scope of DS & GS maintenance is determined by the listing of DS and GS maintenance parts in TM 9-1440-250-25P/1/1 and the listing of special tools for DS and GS maintenance personnel in the Department of the Army supply catalog 4935-92-CL-011.

194.105. References

Organizational maintenance of the HERCULES USAREUR launching section modification kit is covered in TM 9-1440-250-20/1. Schematic diagrams are furnished in TM 9-1440-250-20/2, and wiring diagrams are provided in TM 9-1440-250-35/1. General maintenance procedures are provided in TM 9-1440-250-15/3. Additional general maintenance procedures applicable to performing maintenance on the HERCULES USAREUR launching section modification kit are provided in chapter 4 and TM 9-1400-250-15/3. No references to general maintenance procedures are provided in this chapter.

194.106. General Precautions

When performing maintenance on the hydraulic or electrical portions of the Hercules USAREUR launching section modification kit, the precautions described in *a* and *b* below must be observed.

a. Hydraulic Precautions.

Warning: Hydraulic fluid is flammable. Precautions should be taken to prevent spillage. Fire protection measures should be employed.

- (1) Depressurize test station hydraulic system.

- (a) Open SYSTEM BLEED globe valve (1, fig. 10.1).
- (b) Relieve pressure in accumulator by removing cap (4A, fig. 10.1) from pneumatic tank valve (4, fig. 10.1) and turning swivel nut (4B, fig. 10.1) 1/4 turn counterclockwise, and depressing valve core (4C, fig. 10.1).

- (2) Deenergize electrical system as described in *b*(2) below.
- (3) Cap all open lines to prevent contamination of the system.

b. Electrical Precautions.

- (1) Observe the precautions in (a) through (d) below when removing or installing cable assemblies connected to Hercules monorail launcher No. 1, No. 2, or No. 3 or its associated launcher control-indicator.
 - (a) Set MAIN PWR BRPR on power distribution box of Hercules monorail launcher No. 1, No. 2, or No. 3 to OFF.
 - (b) Shut down launching section generator.
 - (c) Disconnect power cable assemblies from J1K, J1L, and J1M receptacle connectors (P, Q, and R, fig. 279) on the Hercules section simulator group and cap receptacles.
 - (d) Start launching section generator if power is required for other equipment.
- (2) Observe the precautions in (a) through (d) below when performing maintenance on the test station hydraulic pumping unit (2, fig. 10.1), circuit breaker box (5, fig. 10.1), and associated cable assemblies.

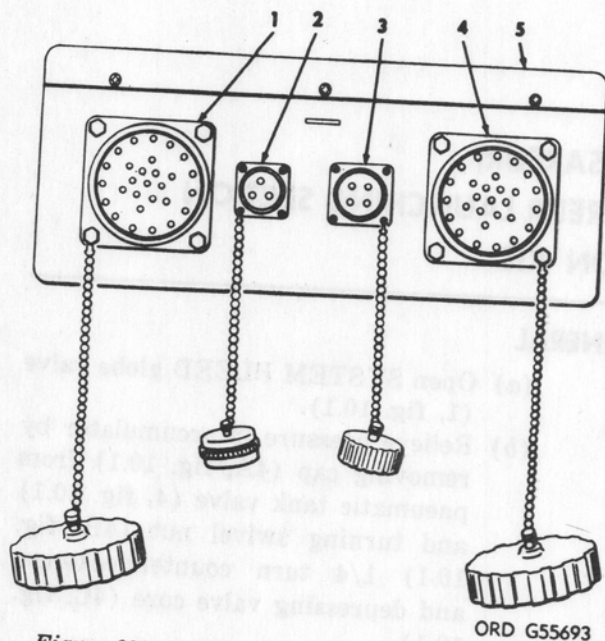


Figure 289.26. Three-way junction box—receptacle connectors.

- (a) Set MOTOR POWER switch (4, fig. 10.2) on circuit breaker box to OFF.
- (b) Shut down launching section generator.
- (c) Disconnect power cables connected to J78A and J95A receptacle connectors (2 and 3, fig. 289.26) on the three-way junction box (5, fig. 289.26) and cap receptacles.
- (d) Start launching section generator if power is required for other equipment.

- 1—J6K receptacle connector
- 2—J78A receptacle connector
- 3—J95 receptacle connector
- 4—J1AA receptacle connector
- 5—Three-way junction box

Fig. 289.26. Three-way junction box—receptacle connectors—legend.

Section II. MAINTENANCE OF HERCULES USAREUR LAUNCHING SECTION MODIFICATION KIT HYDRAULIC SYSTEM

194.107. General

This section provides the procedures for performing maintenance on the hydraulic system of the Hercules USAREUR launching section modification kit. The maintenance procedures provided describe the removal, disassembly, assembly, and installation of the test station hydraulic pumping unit, clamps, valve assemblies, and fittings of the hydraulic network. The precautions described in paragraph 194.106 must be observed when performing any maintenance on these items.

194.108. Loading Rack Clamp Assembly

There are 19 loading rack clamp assemblies (1, fig. 289.27). These clamp assemblies sup-

port the hydraulic lines and the electrical cable assemblies. The procedures described in *a* through *d* below are typical for the removal, disassembly, assembly, and installation of the loading rack clamp assemblies.

Note. The key numbers shown in parentheses in *a* and *d* below refer to figure 289.27 unless otherwise indicated.

a. Removal.

- (1) Loosen rod end clevis (1a) and release retainer assemblies (1b) and (1c).
- (2) Loosen wingnut (1d) and remove clamp assembly (1).

b. Disassembly (fig. 264). Disassemble clamp assembly.

- 1—Loading rack clamp assembly
 - a—Rod end clevis
 - b—Retainer assembly 8522111
 - c—Retainer assembly 8167385
 - d—3/8-16 wingnut
- 2—Tube cap
- 3—Test station valve assembly
 - a—Rod end clevis

- b—Retainer assembly
- c—3/8-16 wingnut
- 4—Tube nipple
- 5—Tube tee
- 6—Cable assembly 9032743
- 7—Tube assembly 9032600
- 8—Tube assembly 9032599

Figure 289.27. HERCULES USAREUR launching section modification kit hydraulic system—removal and installation—legend.

c. Assembly.

- (1) Install two rod end clevises.
- (2) Install two retainer assemblies.

Note. Retainer assemblies and clevises must be free to rotate after assembly.

d. Installation.

- (1) Install clamp assembly (1).
- (2) Secure retainer assemblies (1b and 1c).

194.109. Test Station Valve Assembly

There are nine test station valve assemblies (3, fig. 289.27). Each valve assembly (fig. 267) consists of a globe valve, two tube tees, two rubber hose assemblies joined at one end by a quick-disconnect coupling assembly, and a loading rack clamp assembly to install the valve assembly. The procedures described in *a* through *d* below are typical for the removal, disassembly, assembly, and installation of a test station valve assembly.

Note. The key numbers shown in parentheses *a* and *d* below refer to figure 289.27.

a. Removal.

- (1) Perform the hydraulic precautions described in paragraph 194.106a.
- (2) Place a container underneath valve assembly (3) to be removed, to catch hydraulic fluid that drips from lines.
- (3) Disconnect and cap the hydraulic lines. Remove tube caps (2), as required.
- (4) Loosen clevis (3a) and release retainer assembly (3b).
- (5) Release electrical cable assemblies.
- (6) Loosen wing nut (3c) and remove valve assembly (3).

b. Disassembly.

- (1) Remove rubber hose assemblies (fig. 267) and cap open couplings.
- (2) Disassemble remaining parts of valve assembly.
- (3) Disassemble loading rack clamp assembly (fig. 264).

c. Assembly.

- (1) Assemble loading rack clamp assembly.

- (2) Position and secure tube tees (fig. 267) on clamp assembly.
- (3) Install globe valve.
- (4) Install rubber hose assemblies and all remaining parts.

d. Installation.

- (1) Position test station valve assembly (3) and install by securing wingnut (3c).
- (2) Connect attaching tube assemblies or tube caps (2) and torque coupling nuts or caps to 300 pound-inches.
- (3) Secure retainer assembly (3b).
- (4) Perform hydraulic test station air bleed procedures as described in TM 9-1440-250-20/1.

194.110. Hydraulic Network Tube Fittings and Hose Assemblies

The procedures described in *a* and *b* below are typical for the removal and installation of the tube nipples (4, fig. 289.27) and tube tees (5, fig. 289.27).

Note. The key numbers shown in parentheses in *a* and *b* below refer to figure 289.27 unless otherwise indicated.

a. Removal.

- (1) Perform the hydraulic precautions described in paragraph 194.106a.
- (2) Place a container underneath tube nipple (4), or tube tee (5) to be removed, to catch hydraulic fluid that drips from lines.
- (3) Disconnect attaching tube assemblies.
- (4) Remove nipple (4) or tee (5) and cap open lines.

b. Installation.

- (1) Install tube nipple (4) or tube tee (5); torque coupling nuts to 300 pound-inches.
- (2) Perform the launcher hydraulic system air bleed procedures as described in TM 9-1440-250-20/1.

194.111. Test Station Hydraulic Pumping Unit

There is one test station hydraulic pumping unit (2, fig. 10.1) in the missile storage chamber. Removal and installation procedures are

described in *a* and *b* below. For disassembly and assembly of this unit refer to TM 9-5017-5.

a. Removal.

- (1) Perform the hydraulic precautions described in paragraph 194.106a.
- (2) Remove cable assembly (6, view B, fig. 289.27).
- (3) Remove tube assemblies (7 and 8, view B, fig. 289.27) and cap open lines.

b. Installation.

- (1) Install tube assemblies (7 and 8, view B, fig. 289.27); torque coupling nuts to 300 pound-inches.
- (2) Install cable assembly (6, view B, fig. 289.27).
- (3) Perform hydraulic test station air bleed procedures as described in paragraph 43b.

Section III. MAINTENANCE OF HERCULES USAREUR LAUNCHING SECTION MODIFICATION KIT ELECTRICAL SYSTEM

194.112. General

a. This section describes the maintenance of cable assemblies and loudspeakers, and the components and hardware items that support their installation.

b. When replacing any cable assembly (fig. 289.28) that is routed through a conduit containing more than one cable assembly, it may be necessary to remove all of the cable assemblies in that conduit. The size of the affected cable, the cable connector, and the conduit, will determine whether only the affected cable assembly can be removed and replaced. To facilitate the installation of cable assemblies through a conduit, a pullthrough line (fig. 84) is tied to the end of the cable assemblies being removed. The pullthrough line (fig. 84) is pulled into the

conduit as the cable assemblies are removed. The pullthrough line is then tied to the end of the replacement cable assembly or assemblies and pulled through the conduit.

c. The precautions described in paragraph 194.106b must be observed when performing maintenance on these items.

194.113. Cable Assemblies—Launcher Control-Indicator No. 1, No. 2, or No. 3 to Hercules Monorail Launcher Assembly No. 1, No. 2 or No. 3

Note. The key numbers shown in parentheses in this paragraph refer to figure 289.28 unless otherwise indicated.

Cable assemblies (10, 11 and 12) extend from launcher control indicator No. 1 (28) to the

- 1—Hercules monorail launcher assembly No. 3
- 2—Cable assembly—8292842
- 3—Cable assembly—9033356
- 4—Cable assembly—9033354
- 5—Cable assembly—9033357
- 6—Loudspeaker with cable assembly.
- 7—Side truss
- 8—Hercules monorail launcher assembly No. 2
- 9—Hercules monorail launcher assembly No. 1
- 10—Cable assembly—9020322
- 11—Cable assembly—9032802
- 12—Cable assembly—9020321
- 13—Cable assembly—8163992
- 14—Missile storage building
- 15—Cable assembly—9032557
- 16—Cable assembly—9032787
- 17—Launcher control-indicator No. 3
- 18—Circuit breaker box
- 19—Test station hydraulic pumping unit
- 20—Cable assembly—9032743

- 21—Cable assembly—9032879
- 22—Cable assembly—9032880
- 23—Cable assembly—9032554
- 24—Permanent magnet loudspeaker assembly—
- 25—Launcher control-indicator No. 2
- 26—Cable assembly—8525204
- 27—Cable assembly—9029094
- 28—Launcher control indicator No. 1
- 29—Hercules launching section control-indicator
- 30—Three-way junction box
- 31—Hercules section simulator group
- 32—Section control room
- *33—Bolt
- *34—Trench cover plate
- *35—Cable trench
- *36—Cable duct
- *37—Cable trench

*Furnished and installed by Corps of Engineers.

Figure 289.28. Hercules USAREUR launching section—cable assembly locations—removal and installation—legend.

power distribution box assembly and launcher base assembly of Hercules monorail launcher assembly No. 1 (9). Cable assemblies (3, 4 and 5) extend from launcher control-indicator No. 2 (25) to the power distribution box assembly and launcher base assembly of Hercules monorail launcher assembly No. 2 (8). Cable assemblies (3, 4 and 5) also extend from launcher control-indicator No. 3 (17) to the power distribution box assembly and launcher base assembly of Hercules monorail launcher assembly No. 3 (1). Typical removal and installation procedures for these cable assemblies are described in *a* and *b* below.

Warning: Before disconnecting or connecting any external power cables, shut down the launching section generator. Voltages **DANGEROUS TO LIFE** are present when the launching section generator is in operation.

a. Removal.

- (1) Shut down launching section generator.
- (2) Disconnect cable assembly or assemblies from receptacle connectors (C, D, or E, fig. 270) on launcher control-indicator.
- (3) Disconnect cable assembly or assemblies from receptacle connectors (C or D, fig. 271) on power distribution box assembly, or receptacle connector (F, fig. 271) on launcher base assembly.
- (4) Remove trench cover plates (34) from trench (35) between the launcher control-indicator and the launcher assembly.
- (5) Remove cable assembly or assemblies, as required.

b. Installation.

- (1) Install cable assembly or assemblies in cable trench (35).
- (2) Connect cable assembly or assemblies to J81B, J69A, or J69D receptacle connectors (C, D, or E, fig. 270) on launcher control-indicator.
- (3) Connect cable assembly or assemblies to J69C or J69B receptacle connectors (C or D, fig. 271) on power distribution box assembly, or J81A receptacle

connector (F, fig. 271) on launcher base assembly.

- (4) Install trench cover plates (34) on trench (35).
- (5) Wrap the portion of the cables between the trench outlet and the launcher assembly with asbestos insulation tape and wire as described in paragraph 38c.

194.114. Cable Assemblies—Hercules Monorail Launcher Assembly No. 1, No. 2, or No. 3 to Hercules Section Simulator Group

Note. The key numbers shown in parentheses in this paragraph refer to figure 289.28 unless otherwise indicated.

One cable assembly (2) extends from the power distribution box assembly on Hercules monorail launcher assembly No. 3 (1) to the Hercules section simulator group (31). A second cable assembly (2) extends from the power distribution box assembly on Hercules monorail launcher assembly No. 2 (8) to the Hercules section simulator group (31). A third cable assembly (2) and cable assembly (13), connected in tandem, extend from the power distribution box assembly on Hercules monorail launcher assembly No. 1 (9) to the Hercules section simulator group (31). Typical removal and installation procedures for these cable assemblies are described in *a* and *b* below.

Warning: Before disconnecting or connecting any external power cables, shut down the launching section generator. Voltages **DANGEROUS TO LIFE** are present when the launching section generator is in operation.

a. Removal.

- (1) Shut down launching section generator.
- (2) Disconnect cable assembly (2, or 2 and 13) from receptacle connector B, (fig. 271) on power distribution box assembly of the Hercules monorail launcher assembly.
- (3) Disconnect cable assembly (2, or 2 and 13) from receptacle connector (P, Q, or R, fig. 279) on Hercules section simulator group (31).

- (4) Remove trench cover plates (34) from trenches (35 and 37), as required.
- (5) Remove cable assembly (2, or 2 and 13) from trenches (35 and 37).

b. Installation.

- (1) Install cable assembly (2, or 2 and 13) in cable trenches (35 and 37).
- (2) Connect cable assembly (2, or 2 and 13) to J6A receptacle connector (B, fig. 271) on power distribution box assembly of the Hercules launcher monorail launcher assembly.
- (3) Connect cable assembly (2, or 2 and 13) to J1K, J1L, or J1M receptacle connector (P, Q, or R, fig. 279) on Hercules section simulator group (31).
- (4) Install trench cover plates (34) on cable trenches (35 and 37).
- (5) Wrap the portion of the cable assembly (2, or 2 and 13) between the trench outlet and the launcher assembly with asbestos insulation tape and wire as described in paragraph 38c.

194.115. Cable Assemblies—Test Stations

Note. The key numbers shown in parentheses in this paragraph refer to figure 289.29 unless otherwise indicated.

Launcher control-indicators No. 1 and No. 3 (6 and 8), each have an identical set of three cable assemblies (1, 2, and 3). Launcher control-indicator No. 2 (7) has a set of three cable assemblies (1, 2, and 4). Each of these cable assemblies provides power to one of the nine test stations located on the side trusses (5). Each cable assembly consists of two cables and a test station.

Warning: Before disconnecting or connecting any external power cables, shut down the launching section generator. Voltages **DANGEROUS TO LIFE** are present when the launching section generator is in operation.

a. Removal.

- (1) Shut down launching section generator.
- (2) Disconnect cable assembly (1, 2, 3 or 4) or assemblies from receptacle connectors (K through Q, fig. 270) on

launcher control indicator No. 1, No. 2 or No. 3 (6, 7, or 8).

- (3) Remove cable assembly (1, 2, 3, or 4) or assemblies from side truss (5) and loading rack clamp assembly (1, fig. 289.27).

b. Installation.

- (1) Position and install cable assembly (1, 2, 3, or 4) or assemblies on side truss (5) and on loading rack clamp assembly (1, fig. 289.27).
- (2) Connect cable assembly (1, 2, 3 or 4) or assemblies, as required, to J83C, J70C, J83B, J70B, J83A, and J70A receptacle connectors (K through Q, fig. 270) on launcher control-indicator No. 1, No. 2, or No. 3 (6, 7, or 8).

194.116. Cable Assemblies—Test Station Hydraulic Pumping Unit

Note. The key numbers shown in parentheses in this paragraph refer to figure 289.28 unless otherwise indicated.

Cable assemblies (21 and 22) extend from the circuit breaker box (18) to the three-way junction box (30). Cable assembly (20) extends from the circuit breaker box (18) to the test station hydraulic pumping unit (19).

Warning: Before disconnecting or connecting any external power cables, shut down the launching section generator. Voltages **DANGEROUS TO LIFE** are present when the launching section generator is in operation.

a. Removal.

- (1) *Cable assemblies (21 and 22).*
 - (a) Shut down launching section generator.
 - (b) Disconnect cable assembly (21 and 22) or assemblies from receptacle connector (2 or 3, fig. 289.24) on three-way junction box (30) and cap receptacle connectors.
 - (c) Attach a 150-foot pullthrough line or lines to disconnected cable assembly or assemblies as shown in figure 84.
 - (d) Tie opposite end of pullthrough line to handle on Hercules section

simulator group (31) in the section control room (32) to prevent accidental pullthrough.

- (e) Remove trench cover plates (34) on trench (37) between section simulator group (31) and mouth of cable duct (36).
 - (f) Disconnect cable assembly (21 or 22) or assemblies from receptacle connector (1 or 2, fig. 10.2) on circuit breaker box (18).
 - (g) Remove trench cover plates (34) on trench (35) between the test station hydraulic pumping unit (19) and mouth of cable duct (36).
 - (h) Pull cable assembly (21 or 22) or assemblies through cable duct (36).
 - (i) Tie pullthrough line to side truss (7) to prevent accidental pullthrough.
 - (2) *Cable assembly (20).*
 - (a) Shut down launching section generator.
 - (b) Disconnect cable assembly (20) from receptacle connector (5, fig. 10.2) on circuit breaker box (18) and receptacle connector (3, fig. 10.1) on test station hydraulic pump unit (4, fig. 10.1).
 - (c) Remove cable assembly (20).
- b. Installation.*

- (1) *Cable assemblies (21 and 22).*
 - (a) Connect cable assembly (21 or 22) assemblies to J96A or J79A receptacle connector (1 or 2, fig. 10.2) on circuit breaker box (18).
 - (b) Untie secured pullthrough line or lines and attach to opposite end of cable assembly (21 or 22) or assemblies as shown in figure 84.
 - (c) Pull cable assembly (21 or 22) or assemblies through cable trench (35), cable duct (36) and cable trench (37) into section control room (32).
 - (d) Position cable assembly (21 or 22) or assemblies in trenches (35 and

37) and install trench cover plates (34).

- (e) Connect cable assembly (21 or 22) or assemblies to J78A or J95A receptacle connectors (2 or 3, fig. 289.26) on the 3-way junction box (30).
- (2) *Cable assembly (20).* Connect cable assembly (20) to J97A receptacle connector (5, fig. 10.2) on the circuit breaker box (18) and J79A receptacle connector (2, fig. 10.2) on the test station hydraulic pumping unit (19).

194.117. Permanent Magnet Loudspeaker Assembly—Wall-Mounted

A permanent magnet loudspeaker assembly (24, fig. 289.28) is located on the forward wall of the missile storage building (14, fig. 289.28). The cable of the loudspeaker assembly extends through a conduit (6, fig. 289.30) to the trench (35, fig. 289.28), then to the launcher control indicator No. 2 (25, fig. 289.28).

Note. The key numbers shown in parentheses in *a* and *b* below refer to figure 289.30 unless otherwise indicated.

a. Removal.

- (1) Disconnect cable of loudspeaker assembly (5) from receptacle connector (R, fig. 270) on launcher control-indicator No. 2 (25, fig. 289.28).
- (2) Disassemble loudspeaker assembly (5).
- (3) Remove terminal lugs (5F) from terminals marked MCC-COMM and MCT 50VT.
- (4) Remove packing nut (5G) and pull cable out of loudspeaker case (5K).
- (5) Remove loudspeaker case (5K) from wall.
- (6) Attach 50-foot pullthrough line (fig. 84) to terminal end of cable.
- (7) Tie opposite end of pullthrough line to any convenient object to prevent accidental pullthrough.
- (8) Remove trench cover plate (34, fig. 289.28) above mouth of conduit in trench (35, fig. 289.28).

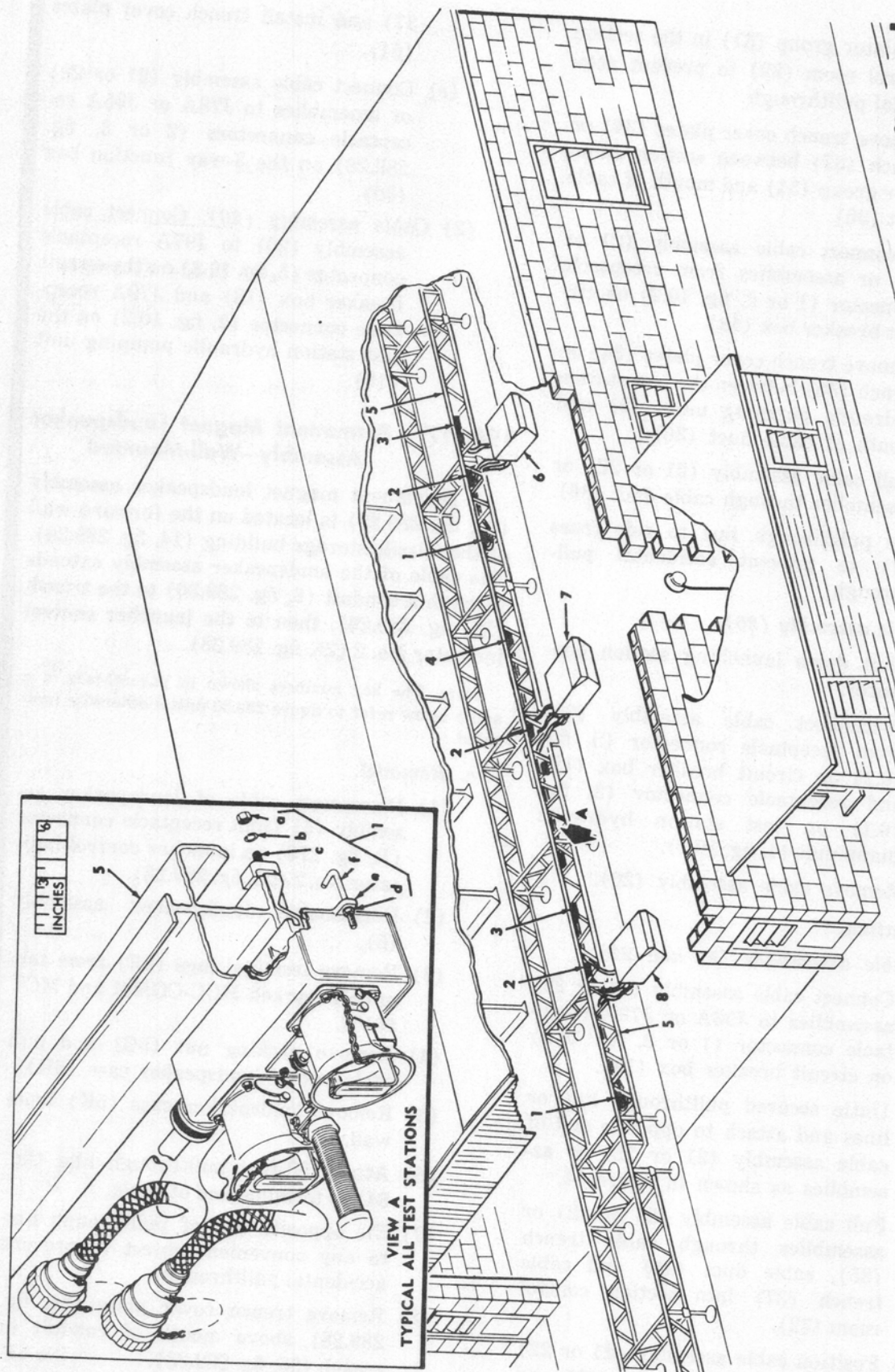


Figure 239.29. Hercules USAREUR test station cable assemblies—removal and installation.

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- 1—Cable assembly 8525076
- A—3/8-16 hexagon nut
- B—3/8-inch lockwasher
- C—Loading rack clamp
- D—5/16-18 hexagon nut
- E—5/16-inch lockwasher
- F—Launcher hook stud

- 2—Cable assembly 8525075
- 3—Cable assembly 8167662
- 4—Cable assembly 9032855
- 5—Side truss
- 6—Launcher control-indicator No. 1
- 7—Launcher control-indicator No. 2
- 8—Launcher control-indicator No. 3

Figure 289.29. HERCULES USAREUR test station cable assemblies—removal and installation—legend.

- (9) Pull cable from conduit (6) into trench (35, fig. 289.28).
- (10) Untie pullthrough line and remove cable.

b. Installation.

- (1) Attach pullthrough line to terminal lug end of replacement cable.
- (2) Pull cable through conduit (6).
- (3) Install loudspeaker case (5K) on wall.
- (4) Remove packing nut (5G) and washer (5H) from loudspeaker case (5K) and install on cable.
- (5) Feed white and black lead of cable into loudspeaker case (5K).
- (6) Secure white lead to terminal marked MCC-COMM, and black lead to terminal marked MCT 50VT.
- (7) Install packing (5J) and tighten packing nut (5G) on loudspeaker case (5K).
- (8) Install horn (5D) and gasket (5E).
- (9) Connect opposite end of cable to J12B receptacle connector (R, fig. 270) on launcher control-indicator No. 2 (25, fig. 289.28).
- (10) Install trench cover plate (34, fig. 289.28) on trench (35, fig. 289.28).

194.118. Loudspeaker with Cable Assembly

Note. The key letters shown in parentheses in this paragraph refer to figure 289.28 unless otherwise indicated.

There are three loudspeakers with cable assemblies (6) located on the side trusses (7) near Hercules monorail launcher assemblies No. 1, No. 2, and No. 3 (9, 8 and 1). The cable assembly of each loudspeaker is connected to the power distribution box assembly of each launcher assembly.

a. Removal.

- (1) Disconnect cable assembly from receptacle connector (A, fig. 271) on the power distribution box assembly.
- (2) Remove loudspeaker with cable assembly (6, view A) from side truss (7, view A), as required.

b. Installation.

- (1) Position and secure loudspeaker with cable assembly (6, view A) to side truss (7, view A).
- (2) Connect cable assembly to J12A receptacle connector (A, fig. 271) on power distribution box assembly.
- (3) Wrap cable assembly with asbestos insulation tape and wire, as described in paragraph 38c.

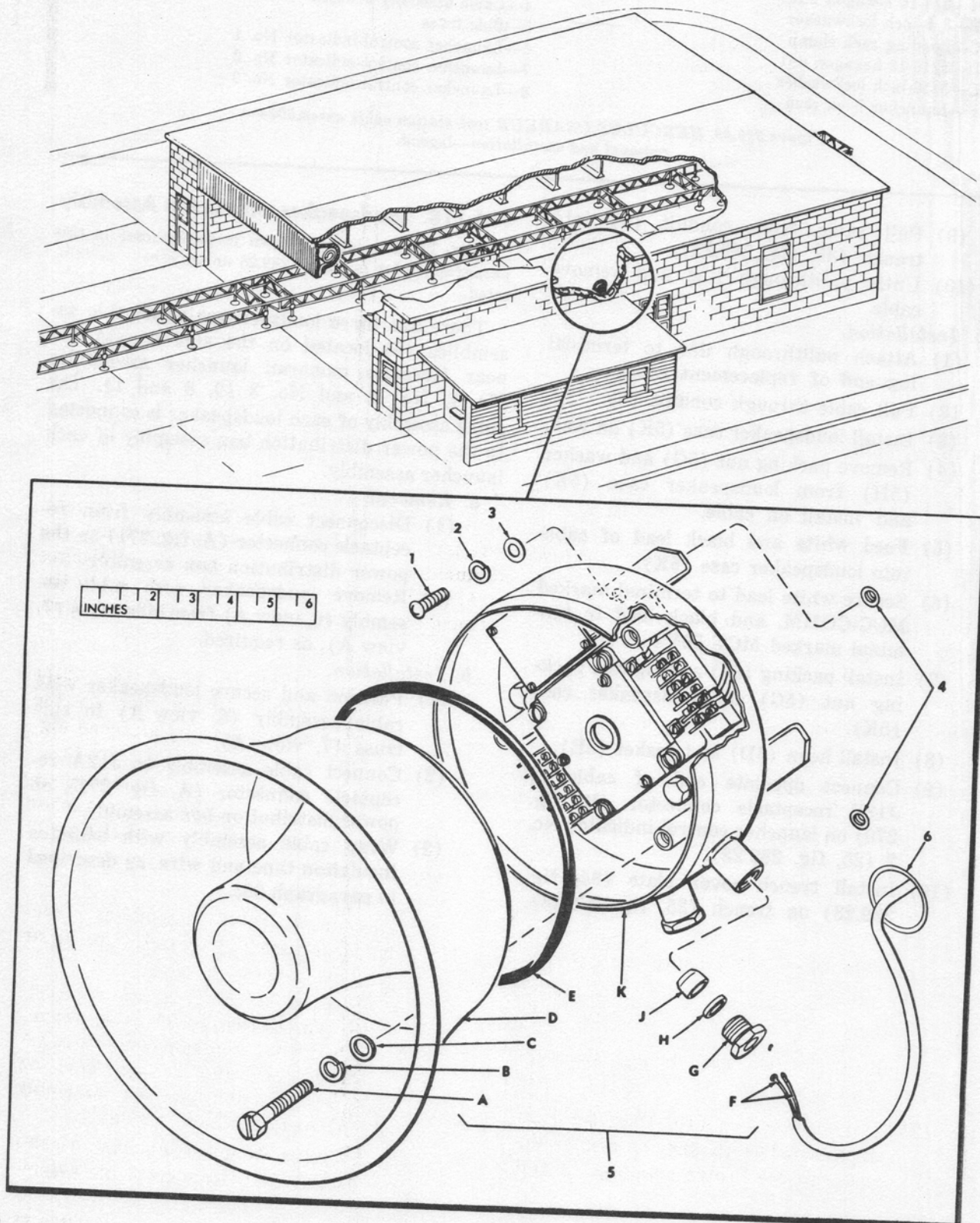


Figure 289.30. Permanent magnet loudspeaker assembly—wall-mounted—removal and installation.

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- 1—1/4-20 x 5/8 round-head screw (2)
- 2—1/4-inch lockwasher (2)
- 3—17/64-inch flat washer (2)
- 4—Expansion shield (2)
- 5—Permanent magnet and loudspeaker assembly
 - A—3/8-16 x 1 1/4 hexagon-head capscrew (2)
 - B—3/8-inch lockwasher (2)
 - C—3/8-inch flat washer (2)

- D—Horn
- E—Gasket
- F—Terminal lug (2)
- G—Packing nut
- H—Flat washer
- J—Packing
- K—Loudspeaker case
- 6—Conduit

Figure 289.30. Permanent magnet loudspeaker assembly—
wall-mounted—removal and installation—legend.

Section IV. MAINTENANCE OF HERCULES USAREUR LAUNCHING SECTION MODIFICATION KIT MECHANICAL COMPONENTS

194.119. General

This section describes maintenance procedures for the Hercules USAREUR launching section modification kit mechanical components that are not covered in the preceding hydraulic and electrical sections.

194.120. Loading Rack Bridge Frames

There are four loading rack bridge frames (fig. 289.31) located in the missile storage building.

Warning: Maintenance on the loading rack bridge frames should not be attempted until it has been determined that guided missiles M1 or guided missiles M6 on either side of the bridge frames are restrained from movement by the loading rack stops.

Note. The key numbers shown in parentheses in *a* through *d* below refer to figure 289.31.

a. Removal. Remove bridge frame (5) and bridge supports (8 and 9).

b. Disassembly. Disassemble bridge frame (5).

c. Assembly. Assemble loading rack bridge frame (5).

d. Installation.

- (1) Install loading rack bridge supports (8 and 9).
- (2) Adjust setscrews (10) until headless pin assemblies (6 and 7) can be inserted in the bridge supports (8 and 9).

194.121. Mounting Brackets—Hercules Monorail Launcher Assembly No. 1, No. 2, or No. 3

Six mounting brackets (fig. 287) are used to support the launcher base assembly. Typical removal and installation procedures for one set of six brackets are described in *a* and *b* below.

Warning: Before disconnecting or connecting any external power cables, shut down the launching section generator. Voltages DANGEROUS TO LIFE are present when the launching section generator is in operation.

a. Removal.

- (1) Attach multiple leg slings (fig. 287) to intermediate lifting lugs on the launcher assembly using attached toggle pins.
- (2) Remove hexagon nuts, lockwashers and square flat washers from anchor bolts at each mounting bracket.
- (3) Shut down launching section generator.
- (4) Disconnect cable assemblies from launcher assembly No. 1, No. 2, or No. 3 as follows:

- (a) *Hercules monorail launcher assembly No. 1.* Disconnect cable assemblies from receptacle connectors (A through D, and F, fig. 271) on power distribution box assembly and launcher base assembly.
- (b) *Hercules monorail launcher assembly No. 2.* Disconnect cable assem-

blies from receptacle connectors (A through D, and F, fig. 271) on power distribution box assembly and launcher base assembly.

(c) *Hercules monorail launcher assembly No. 3.* Disconnect cable assemblies from receptacle connectors (A through D, and F, fig. 271) on power distribution box assembly and launcher base assembly.

(5) Remove side truss assemblies (fig. 289).

(6) Using a hoisting device capable of lifting a minimum of 12,500 pounds, attach multiple leg slings (fig. 287) to lifting hook, and raise launcher assembly clear of anchor bolts.

(7) Remove front, intermediate, or rear mounting brackets (fig. 288), as required.

b. Installation.

(1) Install the front, intermediate, or rear mounting brackets, as required.

(2) Lower the Hercules monorail launcher assembly over anchor bolts (fig. 287).

(3) Level the launcher assembly as described in TM 9-1440-250-20/1.

(4) Position and install the side truss assemblies (fig. 289).

(5) Secure mounting brackets (fig. 287) to anchor bolts.

(6) Release toggle pins at intermediate lifting lugs and remove slings.

(7) Connect cable assemblies to launcher assembly No. 1, No. 2, or No. 3 as follows:

(a) *Hercules monorail launcher assembly No. 1.* Connect cable assemblies to J12A, J6A, J69C, J69B, and J81A receptacle connectors (A through D, and F, fig. 271) on power distribution box assembly and launcher base assembly.

(b) *Hercules monorail launcher assembly No. 2.* Connect cable assemblies to J12A, J6A, J69C, J69B, and J81A receptacle connectors (A through D, and F, fig. 271) on power distribution box assembly and launcher base assembly.

(c) *Hercules monorail launcher assembly No. 3.* Connect cable assemblies to J12A, J6A, J69C, J69B, and J81A receptacle connectors (A through D, and F, fig. 271) on power distribution box assembly and launcher base assembly.

- 1—1/8 x 1 cotter pin (2)
- 2—5/8-18 x 1 41/64 hexagon-head bolt (2)
- 3—5/8-18 slotted hexagon nut (2)
- 4—0.656-inch-id flat washer (4)
- 5—Loading rack bridge frame 9031341 (right)
 - A—0.312 x 3 1/4 spring pin
 - B—3/4 x 1 1/4 headless straight pin
 - C—0.763-inch-id flat washer

- D—8-coil helical compression spring
- 6—Headless pin assembly 8522086 (8)
- 7—Headless pin assembly 8530847 (8)
- 8—Loading rack bridge support
- 9—Loading rack bridge support
- 10—Setscrew (8)
- 11—Loading rack rail section

Figure 289.31. Loading rack bridge frame—removal, disassembly, assembly, and installation—legend.

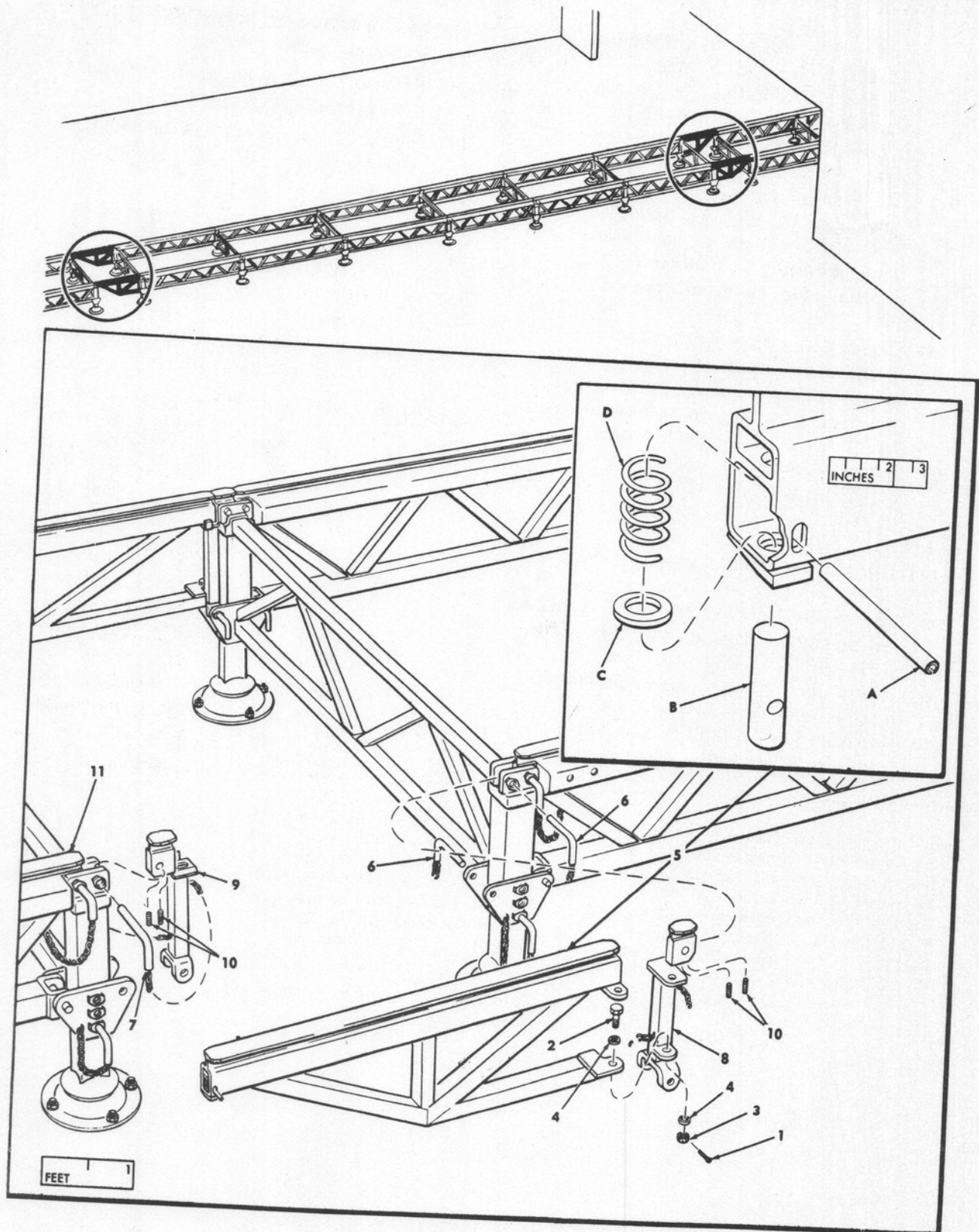


Figure 289.31. Loading rack bridge frame—removal, disassembly, assembly, and installation.

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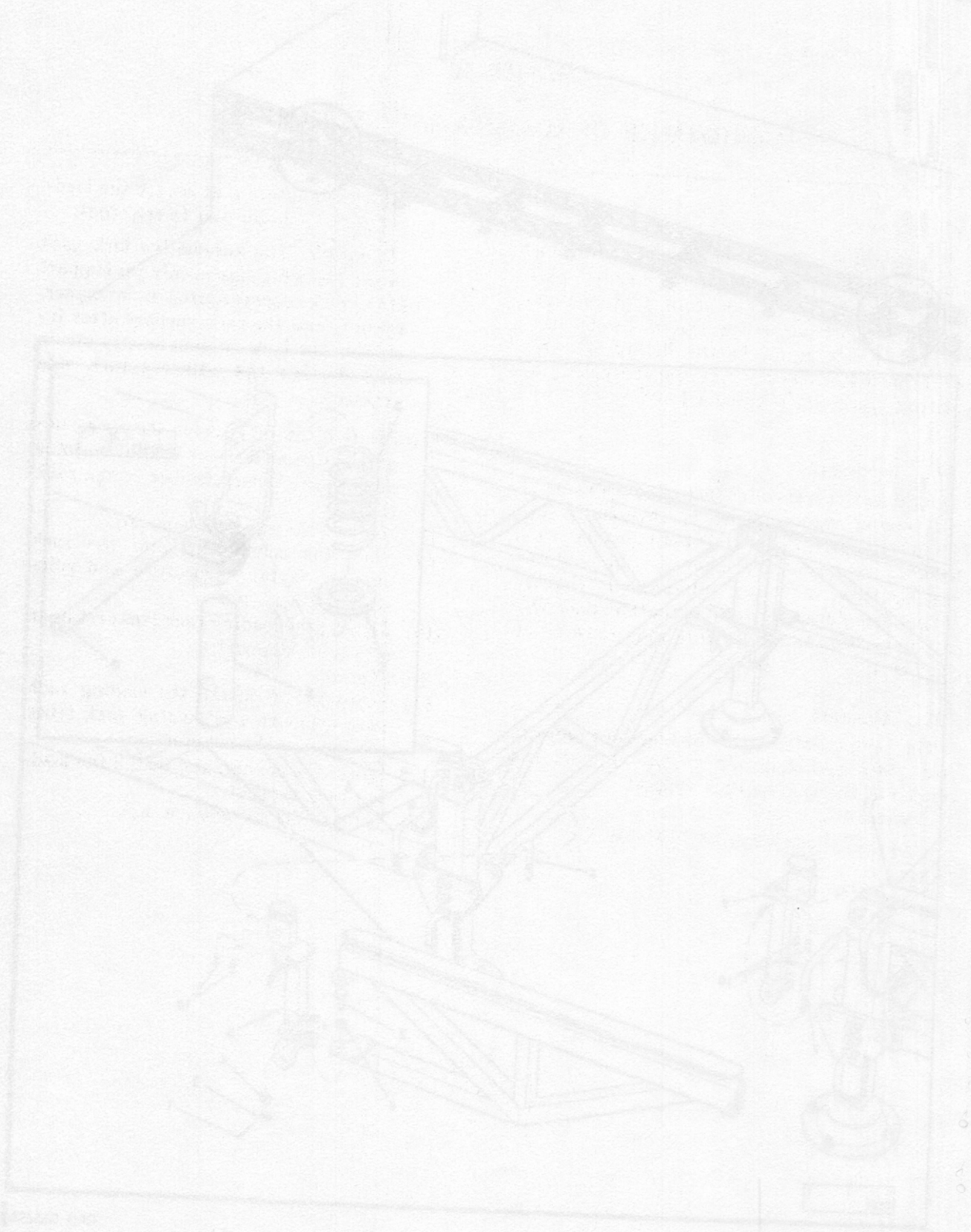


FIGURE 1. Lifting and lowering mechanism for the crane.